REMARKS

Claims 10-18 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for the reasons noted in the official action. The rejected claims are accordingly amended, by the above claim amendments, and the presently pending claims are now believed to particularly point out and distinctly claim the subject matter regarded as the invention, thereby overcoming all of the raised § 112, second paragraph, rejections.

Claim 11 is rejected, under 35 U.S.C. § 103(a), as being unpatentable over Loffler et al. `184 in view of Allen et al. `417. The Applicant would first like to point out that Claim 10 has been amended to include the subject matter of claim 11. In light thereof, the Applicant acknowledges and respectfully traverses the raised obviousness rejection in view of the following remarks.

As the Examiner is aware, in order to properly support an obviousness rejection under 35 U.S.C. § 103(a), the references must each contain some disclosure, teaching or at least a suggestion, which would lead one of ordinary skill in the art to combine the references to meet all the elements of the Applicant's claimed invention.

Loffler et al. '184 discloses a hydrodynamic torque converter with a bridging, i.e., a lock-up, coupling 5 between the input pump 2 and the output turbine 4. The bridging coupling 5 is actuated by an annular piston 6 to which the torque converter's internal pressure is applied on one side, i.e., surface 9 thereof in an opening direction, and a closing pressure is applied on the opposite side, surface 10 via closing chamber 8.

The converter 1 is supplied with pressurized fluid via a feed pipe 11 and a discharge pipe 12. According to the pressure of the feed pipe 11 and the pressure at the exit of the converter 1, i.e., the output pressure, there is generated in the converter 1, depending on the operating conditions, temperature viscosity of the operating means and on the manufacturing tolerances, an internal converter pressure applied to the first active surface 9 of the annular piston 6 (column 2, lines 59 - 66 of Loffler et al. `184). In an opposite manner, a closing pressure acts upon the second surface 10 of the annular piston 6 via a pressure pipe 13

(column 2, line 67 through column 3, line 1). The closing pressure is regulated by a pre-controlled regulating valve 14 depending on the output pressure of the converter 1 and on a control pressure that is modulated by other operating parameters (column 3, lines 1 - 6).

Importantly, Loffler et al. '184 merely relates to the bridging, or lock-up clutch of a torque converter. Contrary to the presently claimed invention Loffler does not disclose any clutch or coupling member, nor any structure or method for connecting a drive mechanism of the torque converter to the pump impeller, i.e., an input clutch, other than to relate at column 2, line 51". . .a pump 2 operatively connected with a driving engine, not shown in detail. . .".

Allen et al. '147 arguably discloses a clutch control system 36 for a drive train having an input clutch 27 arranged between a prime mover 17 and the impeller, or pump element 12 of the torque converter as well as a bridging or lock-up clutch 31 as best seen in Fig. 4. The clutch control system 36 includes an upper portion 37 which regulates operation of the input clutch 27, and a lower portion which regulates engagement of the lock-up clutch 31. The resulting invention disclosed in Allen et al. '147 provides that the clutch control valve has a delayed response to fluid pressure from the transmission means to insure engagement of the input clutch subsequent to the transmission means and an accumulator for controlling the rate of pressure rise in the input clutch.

Observing Fig. 1 of Allen et al. `147 the input clutch is regulated by fluid pressure in actuating chamber 28 on a piston. While arguably the opposing side of the piston has some opposing pressure, this pressure, even if it is an internal pressure of the converter housing does not ". . .act[s] directly or indirectly upon said control unit" as recited in claim 10. The only disclosed pressures acting from an external source on the control unit 36 are (1) the pressure from the transmission control valve assembly 21 via passage 47 for actuating the input clutch 28, and (2) the fluid pressure communicated to bore 72 of the lock-up clutch control valve 38 from a speed sensing means 78, and (3) in a low speed range setting pressure from transmission control valve assembly 21 to the right side of bore 72 of the lock-up clutch control valve 38.

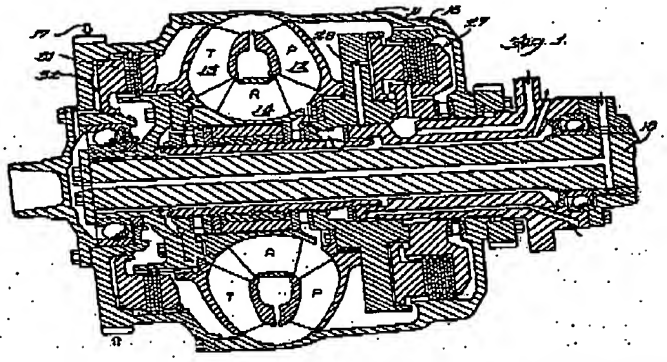
The Examiner contends that Loffler et al. '184 and Allen et al. '417 can be combined because of "the motivation [. . .] to provide controlled engagement of the pump to the converter drive". In contradistinction to this assertion, Loffler et al. '184 does not discuss, disclose, or teach that such controlled engagement of the input clutch would be beneficial or even possible. Loffler's only disclosure relates to the closing pressure of the bridging clutch 5 dependant upon the output pressure of the converter. In fact, not only is there a lack of any reference to an input clutch in Loffler et al., other than ". . .*a* pump 2 *operatively connected* with a driving engine. . ." the specific disclosure of Loffler et al. '184 merely states that "[c]onverters of this construction are widely distributed and generally known in the art" column 2, lines 53-54.

It is the Applicant's position that even if Loffler et al. '184 did engender such motivation, contrary to the applied combination, one of skill in the art would have no reason to look to Allen et al. '417, since as discussed below, Allen relates to a clutch control system for sequencing operation of the lock-up clutch relative to the input clutch, which is entirely distinct from the use of the internal converter pressure to regulate the bridging or lock-up clutch as disclosed in Loffler et al. '184.

Observing Fig. 4 of Allen et al. '417 as set out below, the only disclosed pressures acting from an external source on the control unit 36 are (1) the pressure from the transmission control valve assembly 21 via passage 47 for actuating the input clutch 28, and (2) the fluid pressure communicated to bore 72 of the lock-up clutch control valve 38 from a speed sensing means 78, and (3) in a low speed range setting pressure from transmission control valve assembly 21 to the right side of bore 72 of the lock-up clutch control valve 38.

There is no disclosure, teaching or even a suggestion that control of either of the input or lock-up clutches is accomplished in regards to the internal pressure of the converter in Allen et al '417. In fact, as clearly seen in Fig. 4 of Allen et al '417 reproduced below, the regulation of the lock-up clutch 31 is apparently entirely dependent on the pressure of the input clutch 27 via pressure line 74, and a speed sensor 78 via pressure line 77. The only other input pressure to the lock-up clutch 31 is at low speed range settings where the transmission

control valve assembly 21 provides a pressure via pressure line 79 to maintain engagement of the lock-up clutch for efficiencies sake.



Thus, even if possible, a combination of the cited references would merely insert the input clutch design and control of Allen et al. `417 and replace the bridging lock-up clutch 5 of Loffler et al. `184 with the entirely input clutch dependent, lock-up clutch 31 of Allen et al. `417 thus negating the regulation of the Loffler bridging clutch 5 according to an internal pressure of the converter.

Even if the references can be combined, and the Applicant adamantly disputes such an assertion, the combination of the references is capable of disclosing all of the elements claimed in the present application. Presently, claim 10 now also recites

> . . .the hydraulic pressure acting upon said first piston area (4) acting directly or indirectly upon said control unit (11) and said control unit (11) adjusts the hydraulic pressure upon said second piston area (5) depending on the hydraulic pressure upon said first piston area (4); and wherein one drive mechanism of said torque converter (1) is connectable via said at least one clutch (2) with one pump impeller (6) of said torque converter.

Allen et al. `417 may arguably disclose an input clutch, however this reference does not disclose any such feature of either clutch being regulated according to an internal pressure of the converter.

Whereas the remaining rejections in the most recent Office Action relate to claims dependent on claim 10, these claims are believed allowable for the same reasons as set forth above and no other remarks are believed necessary at this time. The Applicant has added claims 19-26 which are similar to the subject matter of claims 10-18 and written to provide further clarity to the presently claimed invention. By way of example claim 19 specifically sets out the feature

> wherein the internal hydraulic pressure acting upon said first piston area (4) is applied to said control unit (11) and said control unit (11) adjusts the second hydraulic pressure upon said second piston area (5) depending on the internal hydraulic pressure *to regulate the input clutch connecting the drive mechanism to the pump impeller.*

While it might be arguable that a combination of the references would suggest the use of the internal converter pressure as in Loffler et al. `184 to effectuate the lock-up clutch of Allen et al. `417, the Applicant can find no disclosure, teaching or suggestion that would lend itself to any use with an input clutch. In fact, based on the specific clutch control assembly 36 as disclosed in Allen et al `184 It is unlikely that a combination of these two references could even produce an actual, working clutch control as there is no structure available in the Allen et al's clutch control to accommodate the direct, or indirect internal converter pressure.

Additionally, the Applicant submits new claim 27 which incorporates the subject matter of claim 14 into the base claim. This provides the further features "wherein a pressure sensor (17) determines the internal hydraulic pressure acting upon said first piston area (4) and an electronic control unit (18) adjusts the second hydraulic pressure acting upon said second piston area (5) depending on a nominal value setting." It is important to note with respect to the Kashiwabara `159 reference, that the pressure sensor 58 disclosed therein does not measure, nor determine the internal hydraulic pressure of the converter acting on the piston. Observing Fig. 4 of Kashiwabara the sensor 58 is located between the two converter oil pressure supply lines for applying pressures to open and close the clutch. As noted at column 6, lines 19-23,

"Incidently, a converter oil pressure (working oil pressure) is supplied to the pressure chamber 52 through a pressure passage 54b, while the converter oil pressure is supplied to the pressure chamber 53 through a pressure passage 54a." The differential pressure of these two oil pressure supply lines is not a measure of the internal pressure of the torque converter as presently recited in the Applicant's claims 19 and 27. "an internal hydraulic pressure within said housing (1) acting upon the first piston area (4). . .". The differential pressure is merely a difference between the supply pressures to the clutch, not any representation of the internal pressure of the torque converter.

As at least the above discussed features of the presently claimed invention are not disclosed, taught or suggested in any manner by the cited references either alone or in combination the Applicant respectfully requests withdrawal of the anticipation and obviousness rejections.

In view of the above amendments and remarks, it is respectfully submitted that all of the raised anticipation and obviousness rejections should be withdrawn at this time. If the Examiner disagrees with the Applicant's view concerning the withdrawal of the outstanding rejection(s) or applicability of the Loffler et al. '184, and Allen et al. '417 references, the Applicant respectfully requests the Examiner to indicate the specific passage or passages, or the drawing or drawings, which contain the necessary teaching, suggestion and/or disclosure required by case law. As such teaching, suggestion and/or disclosure is not present in the applied references, the raised rejection should be withdrawn at this time. Alternatively, if the Examiner is relying on his/her expertise in this field, the Applicant respectfully requests the Examiner to enter an affidavit substantiating the Examiner's position so that suitable contradictory evidence can be entered in this case by the Applicant.

If any further amendment to this application is believed necessary to advance prosecution and place this case in allowable form, the Examiner is courteously solicited to contact the undersigned representative of the Applicant to discuss the same.

In view of the foregoing, it is respectfully submitted that the raised obviousness rejections should be withdrawn and this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

The Applicant respectfully requests that any outstanding objection(s) or requirement(s), as to the form of this application, be held in abeyance until allowable subject matter is indicated for this case.

In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,

Scott A. Daniels, Reg. No. 42,462
Customer No. 020210
Davis & Bujold, P.L.L.C.
Fourth Floor
500 North Commercial Street
Manchester NH 03101-1151
Telephone 603-624-9220
Facsimile 603-624-9229
E-mail: patent@davisandbujold.com